

### 3 • Molecules & Compounds

Mass Calculations – Difficulty Level 3

1 mole = 6.02 x 10<sup>23</sup> molecules = 22.4 L (at STP)

1. Calculate the mass of 1.28 moles CO<sub>2</sub>. (molar mass CO<sub>2</sub> = 44.0 grams)

(a) 1.28 moles CO<sub>2</sub>  
 (b) 7 g CO<sub>2</sub>



2. What volume will 1.28 moles of CO<sub>2</sub> gas occupy at STP?

(a) 1.28 moles CO<sub>2</sub>  
 (b) 7 g CO<sub>2</sub>



3. How many molecules are there in a 0.0001 mole sample of H<sub>2</sub>O?

(a) 6.0220 x 10<sup>23</sup> molecules H<sub>2</sub>O  
 (b) 7 molecules H<sub>2</sub>O



4. What mass of CO<sub>2</sub> gas occupies a volume of 100 L, at STP? (molar mass CO<sub>2</sub> = 44.0 grams)

(a) 100 L moles CO<sub>2</sub>  
 (b) 7 g CO<sub>2</sub>



5. How many molecules are in a 20.0 gram sample of H<sub>2</sub>O? (molar mass H<sub>2</sub>O = 18.0 grams)

(a) 20.0 g H<sub>2</sub>O  
 (b) 7 molecules H<sub>2</sub>O



6. What volume will 1.28 x 10<sup>23</sup> molecules of CO<sub>2</sub> occupy at STP?

(a) 1.28 x 10<sup>23</sup> molecules CO<sub>2</sub>  
 (b) 7 L

